# APPENDIX K

# Wetlands and Waters of the U.S. Determination Technical Memorandum

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**Wetlands and Waters of the U.S. Determination Technical Memorandum**

**To:** Idaho Panhandle National Forests and Lolo National Forest
**From:** Matthew Vesh, Wetland Scientist/Botanist, SWCA Environmental Consultants
**Date:** July 16, 2015
**Subject:** Lookout Pass Ski Area Expansion EIS, Shoshone County, Idaho, Mineral County, Montana

# INTRODUCTION

Lookout Pass Ski and Recreation Area has proposed to expand its ski area south and west of the current special-use permit boundary onto additional National Forest System (NFS) lands within the Idaho Panhandle National Forests (IPNFs) and Lolo National Forest (LNF). The Proposed Action would add approximately 100 acres of new ski trails and gladed terrain, and would include the installation of two new lifts (Lifts 5 and 6); an upgrade of Lift 1; construction of a new restroom, maintenance shop, and ski patrol building; and the addition of 130 new parking spaces. Also included would be 2.8 miles of new or reconstructed permanent road for administrative and maintenance use by the Forest Service and Lookout Pass Ski and Recreation Area, as well as 1.2 miles of temporary roads for timber harvest and construction access.

The project area is approximately 12 miles east of Wallace, Idaho, along Interstate 90 on the Idaho-Montana border. The wetlands and waters of the U.S. survey included all lands in the project area where ski area expansion disturbance would occur, plus a 150-foot buffer.

# WETLANDS AND WATERS OF THE U.S. DETERMINATION

## Methodology

Two types of investigation were conducted for the project area's wetlands and waters of the U.S. determination: 1) a review of existing information and 2) an on-site investigation.

### *Review of Existing Information*

SWCA Environmental Consultants (SWCA) biologists reviewed existing literature, maps, and other materials before conducting the on-site investigation, as follows:

- U.S. Geological Survey (USGS) 7.5-minute quadrangles for Lookout Pass, Montana-Idaho.
- U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) overlay for the Lookout Pass, Montana-Idaho, USGS 7.5-minute quadrangles.

- Montana Natural Heritage Program Wetland and Riparian (MTNHP) overlay.
- USGS National Hydrography Dataset streams and creeks layer.
- Aerial photographs.

These sources can only indicate the *likelihood* of the presence of wetlands and waters of the U.S.; actual determinations must be based on data obtained from field investigations.

## *On-Site Investigation*

### DETERMINING THE PRESENCE OF WETLANDS AND WATERS OF THE U.S.

During the on-site investigation, SWCA biologists applied the methods defined in the *Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0*) (U.S. Army Corps of Engineers [USACE] 2010).

SWCA biologists applied USACE's routine on-site determination method during the wetlands and waters of the U.S. survey. Ten sampling points (P1–P10) were used to record information on each of the three wetland characteristics: vegetation, soils, and hydrology. Observations were recorded on standardized data forms (Attachment A). SWCA biologists used this information to distinguish wetlands from non-wetlands. If wetlands were determined to be present, they were sketched onto aerial photography maps to show their location in relation to the greater wetland survey area. The wetland sketch maps were digitized onto electronic base maps.

# Results and Conclusion

In all, four wetlands (A–D) and two waters of the U.S. (Tributaries SR2 and CA2) were identified in the project area (Figure 1; Tables 1 and 2). The wetlands documented during the field survey deviate from those mapped on the NWI and MTNHP maps. Sample points P3 and P4 were taken to document the lack of wetlands in the project area; these are located where the MTNHP map shows the occurrence of a wetland polygon. The western third of Wetland B occurs on the MTNHP map but does not occur on the NWI map. Wetland C does not occur on the NWI or MTNHP. Tributary SR2 does not appear on the NWI, MTNHP, or USGS maps, and Tributary CA2 appears as an intermittent stream on the USGS map only. The St. Regis River exists beyond the limits of the project area.

## *Wetlands and Waters of the U.S. Descriptions*

The project area exhibits steeply sloping ground trending downward to the north and south from the Idaho-Montana state line, which is centrally located in project area. The landscape is primarily forested, with the exception of ski trails throughout the existing ski area, and naturally occurring shrub-carr wetlands located north and south of NFS Road 18591. The wetlands in the project area are associated with convergent slopes, seeps, streams, and impoundments from historic development activities where hydrology is persistent enough to support a predominance of hydrophytic vegetation. There are two areas in which historic road cuts were made within non-stream uplands where groundwater has been exposed. These features exist entirely within the historic road prisms and are absorbed back into the soil upon exiting the road prisms.

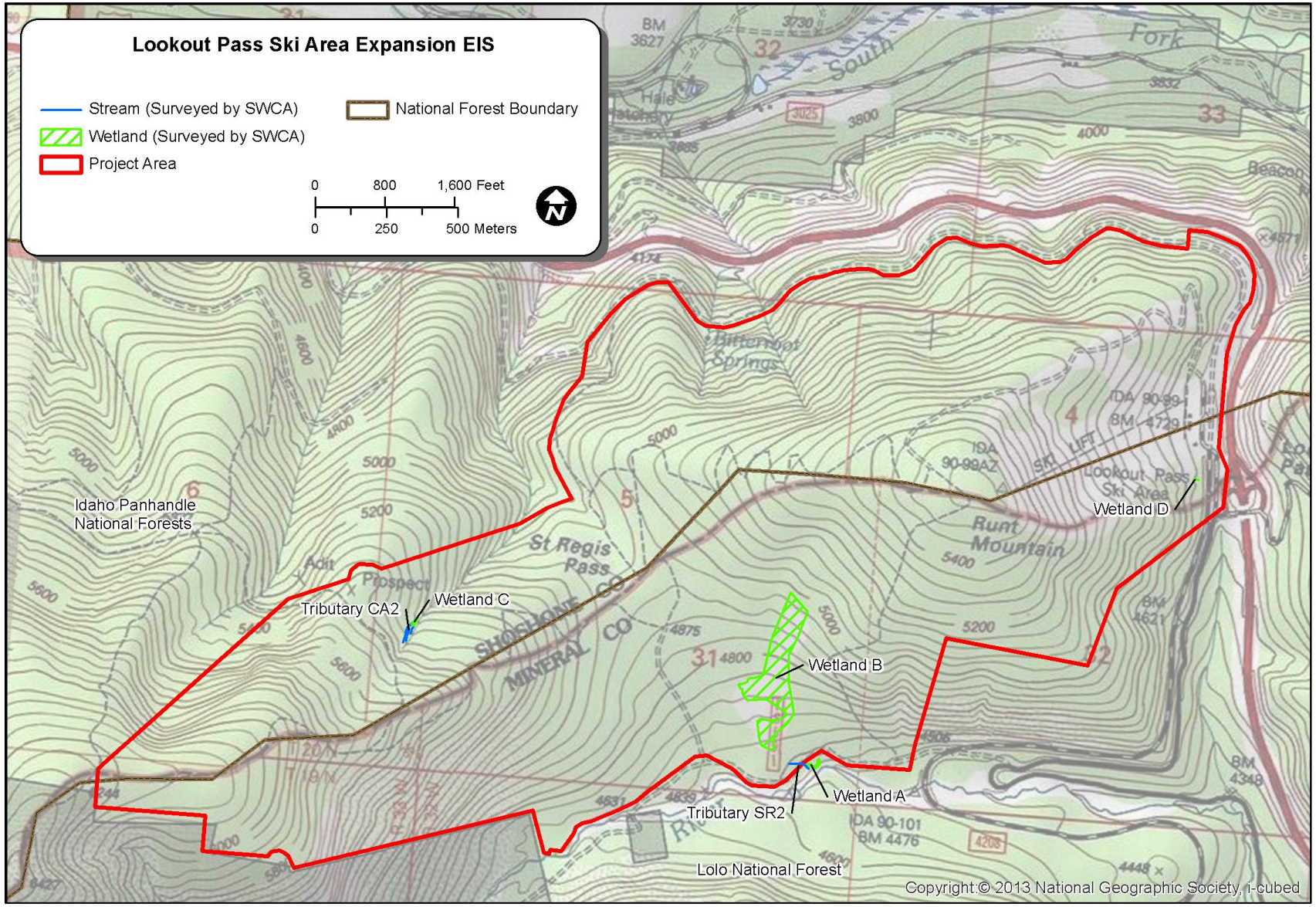


**Figure 1.** Wetlands and waters of the U.S. identified during survey efforts.

**Table 1.** Wetlands Summary within the Expected Disturbance Area for the Expansion, Plus a 100-foot Buffer

| Wetland | Area (acre) | Habitat Guild | Cowardin Classification* |
|---|---|---|---|
| Wetland A | 0.040 | Shrub-carr | PSS |
| Wetland B | 2.360 | Shrub-carr/rich fen | PSS/PEM |
| Wetland C | 0.050 | Wet forest | PEM |
| Wetland D | 0.004 | Shrub-carr | PSS |

* PSS = palustrine scrub-shrub; PEM = palustrine emergent. Wetland classification codes are derived from the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).

**Table 2.** Non-Wetland Waters Summary within the Expected Disturbance Area for the Expansion, Plus a 100-Foot Buffer

| Non-Wetland Waters | Area (acre) | Average Width (feet) | Water Type | Watershed |
|---|---|---|---|---|
| Tributary SR2 | 0.005 | 2.5 | Perennial | St. Regis River |
| Tributary CA2 | 0.040 | 10 (combined braided channels) | Intermittent | Coeur d'Alene River |

## WETLAND A

Wetland A is south and downslope of NFS Road 18591 (Figure B1 in Attachment B). Wetland A is a shrub-carr seep wetland that occurs in the moist forest habitat. In the project area, the wetland encompasses approximately 0.04 acre. Vegetation is dominated by speckled alder (*Alnus incana*), with an understory of lady fern (*Athyrium filix-femina*), clasping twisted stalk (*Streptopus amplexifolius*), arrow-leaf ragwort (*Senecio triangularis*), and blue joint grass (*Calamagrostis canadensis*). During the field investigation, soils within Wetland A were hydric and had strong indicators of hydrology, including saturation at the surface and the water table at 10 inches below the surface. The contrasting uplands were dominated by upland and facultative vegetation and lacked hydric soils and indicators of wetland hydrology. A significant decrease in herbaceous vegetation cover and grand fir along with the presence of wild ginger (*Asarum* spp.) and queen's cup (*Clintonia uniflora*) were the primary vegetation components used to identify the upland/wetland boundary. This wetland continues downslope and beyond the project area boundary.

## WETLAND B

Wetland B is north and upslope of NFS Road 18591 (Figures B2 and B3 in Attachment B). Wetland B is a wetland mosaic with elements of shrub-carr seep wetlands and herbaceous swales. Within the project area, the wetland encompasses 2.36 acres. Vegetation is dominated by speckled alder, western coneflower (*Rudbeckia occidentalis*), lady fern, *Angelica* spp., cow-parsnip (*Heracleum maximum*), and graminoid species. During the field investigation, soils within Wetland B were hydric and had strong indicators of hydrology, including saturation at the surface and the water table at 3 inches below the surface. The contrasting uplands were dominated by upland and facultative vegetation and lacked hydric soils and indicators of wetland hydrology. Multiple drainages exist within this wetland mosaic, but they appear to have been impounded north of the mapped historic road and rerouted east and beyond the project area boundary.

## WETLAND C

Wetland C is between braided channels of Stream 2 (Figure B4 in Attachment B). Wetland C is a sloped wetland seep. In the project area, the wetland encompasses 0.05 acre. Vegetation is dominated by Siberian spring beauty (*Claytonia sibirica*), oak fern (*Gymnocarpium dryopteris*), Brewer's miterwort (*Mitella breweri*), and lady fern. During the field investigation, soils within Wetland C were hydric and had strong indicators of hydrology, including saturation at the surface and drainage patters. A near lack of herbaceous vegetation and the presence of fool's huckleberry (*Menziesia ferruginea*) were the primary vegetation components used to identify the upland/wetland boundary. The wetland continues downslope until the confluence of the two bounding channels near the project area boundary.

## WETLAND D

Wetland D is south of the existing Lookout Pass Ski and Recreation Area buildings (Figure B5 in Attachment B). Wetland D is an isolated wetland seep with an area of less than 200 square feet. Vegetation is dominated by speckled alder, lady fern, tall bluebells (*Mertensia paniculata*), false hellebore (*Veratrum viride*), and wild ginger. During the field investigation, soils within Wetland D were hydric and had strong indicators of hydrology, including saturation at the surface and the water table at 13 inches below the surface. A significant reduction in herbaceous vegetation cover and the dominance of upland vegetation were the components used to identify the upland/wetland boundary.

## TRIBUTARY SR2

Tributary SR2 is a small perennial stream and tributary to the St. Regis River crossing at NFS Road 18591 from northwest to southeast (Figure B6 in Attachment B). Stream 1 is approximately 2.5 feet wide at the ordinary high water mark (OHWM) above and below the existing road prism and approximately 3.5 feet within the road prism.

## TRIBUTARY CA2

Tributary CA2 is a USGS-mapped intermittent stream and tributary to the Coeur d'Alene River located in the north/central portion of the Lookout Pass expansion area (Figure B7 and B8 in Attachment B). The stream originates as a series of seeps that form 3- to 5-foot-wide channels on convergent slopes with uplands located between channels. Three channels cross more or less perpendicular to the planned and flagged road crossing within a distance of 30 feet. These braided channels converge to form wider channels with wetlands contained within the OHWM, whereas new channels form from seeps on the eastern side of the shallow ravine. Downslope of the orange-flagged planned road, the eastern branch channel is 5–12 feet wide, whereas the western branch is as much as 10 feet wide. The distance between these channels is up to 60 feet. Before exiting the project area, the distance between the channels reduces to 35 feet, and the width of the channels reduces to 3–5 feet with wetlands between them. The wetlands are characterized as Wetland C in this memorandum. The channels converge near the boundary of the project area where wetlands are once again contained within the OHWM.

# LITERATURE CITED

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Washington D.C.: U.S. Fish and Wildlife Service.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Corps of Engineers Waterways Experiment Station.

U.S. Army Corps of Engineers. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Edited by J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

# ATTACHMENT A

Data Forms

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/23/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P1**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 31, 20N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 50

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes **X** | No | **Is the Sampled Area within a Wetland?** | **Yes X** **No** |
| Hydric Soil Present? | Yes **X** | No | | |
| Wetland Hydrology Present? | Yes **X** | No | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

### VEGETATION

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| **Tree Stratum** (Plot size: 30' r ) | | | |
| 1. *Picea engelmannii* | 45% | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 45% = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 10' r ) | | | |
| 1. *Alnus incana* | 45% | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 45% = Total Cover | | |
| **Herb Stratum** (Plot size: 5' r ) | | | |
| 1. *Athyrium angustum* | 20% | Yes | FAC |
| 2. *Streptopus amplexifolius* | 15% | Yes | FAC |
| 3. *Calamagrostis canadensis* | 15% | Yes | FACW |
| 4. *Senecio triangularis* | 10% | No | FACW |
| 5. *Geum macrophyllum* | 5% | No | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. *moss* | 15% | No | |
| | 80% = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 10' r ) | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 20%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 70 | x 2 = | 140 |
| FAC species | 85 | x 3 = | 255 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 155 (A) | | 395 (B) |

Prevalence Index = B/A = 2.55

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes X** **No**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P1**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-5 | 10YR 2/1 | 50 | | | | | mucky SiL | |
| 0-5 | | 50 | | | | | | woody debris |
| 5-18 | 10YR 2/1 | 100 | | | | | SiL | bits of charcoal |
| 18-20 | 10YR 2/1 | 60 | | | | | SL | |
| 18-20 | | 40 | | | | | | gravels and rocks |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes X No ___**

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water Table Present? | Yes | X | No | ___ | Depth (inches): 10 |
| Saturation Present? (includes capillary fringe) | Yes | X | No | ___ | Depth (inches): surface |

**Wetland Hydrology Present? Yes X No ___**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Entered by: MV QC by: ___

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/23/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P2**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 31, 20N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 50

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No X | **Is the Sampled Area within a Wetland?** | **Yes** **No X** |
| Hydric Soil Present? | Yes | No X | | |
| Wetland Hydrology Present? | Yes | No X | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

### VEGETATION

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Picea engelmannii* | 55% | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 55% = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 10' r ) | | | |
| 1. *Abies grandis* | 10% | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 10% = Total Cover | | |
| **Herb Stratum** (Plot size: 5' r ) | | | |
| 1. *Mertensia paniculata* | 15% | Yes | FAC |
| 2. *Clintonia uniflora* | 10% | Yes | NOL |
| 3. *Asarum caudatum* | 10% | Yes | FACU |
| 4. *Viola glabella* | 10% | Yes | FACW |
| 5. *Streptopus amplexifolius* | 5% | Yes | FAC |
| 6. *Fragaria virginiana* | 5% | Yes | FACU |
| 7. *Thalictrum occidentale* | 5% | Yes | FACU |
| 8. *Veratrum viride* | 3% | No | FAC |
| 9. *Senecio triangularis* | 1% | No | FACW |
| 10. *Anaphalis margaritacea* | 1% | No | FACU |
| 11. | | | |
| | 65% = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 10' r ) | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 35%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 44% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species 0 | x 1 = | 0 |
| FACW species 11 | x 2 = | 22 |
| FAC species 78 | x 3 = | 234 |
| FACU species 31 | x 4 = | 124 |
| UPL species 10 | x 5 = | 50 |
| Column Totals: 130 (A) | | 430 (B) |

Prevalence Index = B/A = 3.31

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes** **No X**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P2**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-15 | 10YR 2/2 | 100 | | | | | SiL | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes** ___ **No** X

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Shovel and probe refusal at 15 inches dues to 5 inch diameter rocks

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water Table Present? | Yes | ___ | No | X | Depth (inches): >15 |
| Saturation Present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): >15 |

**Wetland Hydrology Present?**

**Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Entered by: MV QC by: ___

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/23/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P3**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 31, 20N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes **X** | No | **Is the Sampled Area within a Wetland?** | **Yes** **No X** |
| Hydric Soil Present? | Yes | No **X** | | |
| Wetland Hydrology Present? | Yes **X** | No | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

## VEGETATION

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0% = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 10' r )** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 0% = Total Cover | | |
| **Herb Stratum (Plot size: 5' r )** | | | |
| 1. *Athyrium angustum* | 40% | Yes | FAC |
| 2. *Gymnocarpium dryopteris* | 20% | Yes | FAC |
| 3. *Osmorhiza berteroi* | 15% | No | FACU |
| 4. *Tiarella trifoliata* | 10% | No | FAC |
| 5. *Streptopus amplexifolius* | 5% | No | FAC |
| 6. *Clintonia uniflora* | 5% | No | NOL |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. *moss* | 5% | No | |
| | 100% = Total Cover | | |
| **Woody Vine Stratum (Plot size: 10' r )** | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 0%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species 0 | x 1 = | 0 |
| FACW species 0 | x 2 = | 0 |
| FAC species 75 | x 3 = | 225 |
| FACU species 15 | x 4 = | 60 |
| UPL species 5 | x 5 = | 25 |
| Column Totals: 95 (A) | | 310 (B) |

Prevalence Index = B/A = 3.26

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes X No**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P3**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-10 | 10YR 3/3 | | | | | | SiL | trace grit/sand |
| 10-17 | 10YR 2/1 | | | | | | SiL | trace grit/sand |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** **Yes** ___ **No** **X**

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Shovel refusal at 11 inches. Probe refusal at 17 inches.

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ | | |
| Water Table Present? | Yes X | No ___ | Depth (inches): 11 | **Wetland Hydrology Present?** | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): surface | **Yes** **X** | **No** ___ |

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: MV QC by: ___
0.5 inches of surface water present within 16 inches of sample plot.

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/23/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P4**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 31, 20N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No **X** | **Is the Sampled Area within a Wetland?** | **Yes** **No X** |
| Hydric Soil Present? | Yes | No | | |
| Wetland Hydrology Present? | Yes | No **X** | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

### VEGETATION

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Abies grandis* | 80% | Yes | FACU |
| 2. *Tsuga heterophylla* | 5% | No | FACU |
| 3. | | | |
| 4. | | | |
| | 85% = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 10' r ) | | | |
| 1. *Menziesia ferruginea* | 40% | Yes | FACU |
| 2. *Vaccinium membranaceum* | 1% | No | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 41% = Total Cover | | |
| **Herb Stratum** (Plot size: 5' r ) | | | |
| 1. *Xerophyllum tenax* | 75% | Yes | FACU |
| 2. *Osmorhiza berteroi* | 5% | No | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. *moss* | 10% | No | |
| | 90% = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 10' r ) | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 10%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

**Prevalence Index worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 126 | x 4 = | 504 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 126 (A) | | 504 (B) |

Prevalence Index = B/A = 4.00

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes** **No X**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P4**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-3.5 | OM | | | | | | | |
| 3.5-5 | 10YR 2/2 | 100 | | | | | SiL | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes** _____ **No** _____

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
shovel refusal by cobbles

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water Table Present? | Yes | ___ | No | X | Depth (inches): >5 |
| Saturation Present? (includes capillary fringe) | Yes | ___ | No | X | Depth (inches): >5 |

**Wetland Hydrology Present?**

**Yes** _____ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Entered by: MV QC by: _____

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/24/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P5**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 31, 20N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes **X** | No | **Is the Sampled Area within a Wetland?** | **Yes X No** |
| Hydric Soil Present? | Yes **X** | No | | |
| Wetland Hydrology Present? | Yes **X** | No | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

### VEGETATION

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0% = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 10' r )** | | | |
| 1. *Alnus incana* | 75% | Yes | FACW |
| 2. *Sambucus racemosa* | 1% | No | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 76% = Total Cover | | |
| **Herb Stratum (Plot size: 5' r )** | | | |
| 1. *Athyrium angustum* | 75% | Yes | FAC |
| 2. *Streptopus lanceolatus* | 5% | No | FAC |
| 3. *Senecio triangularis* | 5% | No | FACW |
| 4. *Ligusticum canbyi* | 5% | No | FAC |
| 5. *Veratrum viride* | 5% | No | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 95% = Total Cover | | |
| **Woody Vine Stratum (Plot size: 10' r )** | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 5%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species 0 | x 1 = | 0 |
| FACW species 80 | x 2 = | 160 |
| FAC species 90 | x 3 = | 270 |
| FACU species 1 | x 4 = | 4 |
| UPL species 0 | x 5 = | 0 |
| Column Totals: 171 (A) | | 434 (B) |

Prevalence Index = B/A = 2.54

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes X No**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P5**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-3 | 10YR 2/1 | 100 | | | | | SiL | mucky |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present? Yes X No ___**

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
shovel and probe refusal at 3 inches

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ | | |
| Water Table Present? | Yes X | No ___ | Depth (inches): 3 | **Wetland Hydrology Present?** | |
| Saturation Present? (includes capillary fringe) | Yes X | No ___ | Depth (inches): surface | **Yes X** | **No ___** |

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: MV QC by: ___

Surface water less than 1 inch adjacnet to sample plot.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/24/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P6**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 31, 20N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes **X** | No | **Is the Sampled Area within a Wetland?** | **Yes** **No X** |
| Hydric Soil Present? | Yes | No **X** | | |
| Wetland Hydrology Present? | Yes | No **X** | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

## VEGETATION

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Picea engelmannii* | 50% | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 50% = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 10' r ) | | | |
| 1. *Alnus incana* | 40% | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 40% = Total Cover | | |
| **Herb Stratum** (Plot size: 5' r ) | | | |
| 1. *Mertensia paniculata* | 30% | Yes | FAC |
| 2. *Rudbeckia occidentalis* | 30% | Yes | FAC |
| 3. *grammanoid species* | 15% | No | NOL |
| 4. *Epilobium ciliatum* | 10% | No | FACW |
| 5. *Veratrum viride* | 5% | No | FAC |
| 6. *Athyrium angustum* | 3% | No | FAC |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 93% = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 10' r ) | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 7%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

**Prevalence Index worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 118 | x 3 = | 354 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 15 | x 5 = | 75 |
| Column Totals: | 183 (A) | | 529 (B) |

Prevalence Index = B/A = 2.89

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes X No**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P6**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-15 | 10YR 2/2 | 100 | | | | | SiL | trace sand |
| 15-17 | 10YR 2/2 | 97 | 10YR 5/8 | 3 | C | M | SiL | trace sand |
| 17-24 | 10YR 2/2 | 75 | 10YR 5/8 | 25 | C | M | SiL | trace sand |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes** ___ **No** X

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): | | |
| Water Table Present? | Yes ___ | No X | Depth (inches): | >24 | **Wetland Hydrology Present?** |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): | >24 | **Yes** ___ **No** X |

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: MV QC by: _____

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Shoshone County Sampling Date: 6/25/2015

Applicant/Owner: USDA Forest Service State: Idaho Sampling Point: **P7**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 5, 48N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 25

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes **X** | No | **Is the Sampled Area within a Wetland?** | **Yes X No** |
| Hydric Soil Present? | Yes **X** | No | | |
| Wetland Hydrology Present? | Yes **X** | No | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

## VEGETATION

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0% = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: 10' r )** | | | |
| 1. *Menziesia ferruginea* | 20% | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 20% = Total Cover | | |
| **Herb Stratum (Plot size: 5' r )** | | | |
| 1. *Claytonia sibirica* | 35% | Yes | FAC |
| 2. *Gymnocarpium dryopteris* | 15% | No | FAC |
| 3. *unidentified forb* | 10% | No | NOL |
| 4. *Athyrium angustum* | 7% | No | FAC |
| 5. *Pectiantia breweri* | 5% | No | FAC |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 72% = Total Cover | | |
| **Woody Vine Stratum (Plot size: 10' r )** | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 28%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

**Prevalence Index worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 62 | x 3 = | 186 |
| FACU species | 20 | x 4 = | 80 |
| UPL species | 10 | x 5 = | 50 |
| Column Totals: | 92 (A) | | 316 (B) |

Prevalence Index = B/A = 3.43

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes X No**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P7**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-5 | 10YR 2/1 | 100 | | | | | SiL | mucky |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** **Yes** X **No** ___

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Shovel refusal by cobbles

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- X Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water Table Present? | Yes | ___ | No | X | Depth (inches): >5 |
| Saturation Present? (includes capillary fringe) | Yes | X | No | ___ | Depth (inches): surface |

**Wetland Hydrology Present?** **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Entered by: MV QC by: ___

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Shoshone County Sampling Date: 6/25/2015

Applicant/Owner: USDA Forest Service State: Idaho Sampling Point: **P8**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 5, 48N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 25

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No | **Is the Sampled Area within a Wetland?** | Yes / No |
| Hydric Soil Present? | Yes | No | | |
| Wetland Hydrology Present? | Yes | No | | |
| | | | | **Yes** **No X** |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

## VEGETATION

| | Absolute | Dominant | Indicator |
|---|---|---|---|
| Tree Stratum (Plot size: 30' r ) | % Cover | Species? | Status |
| 1. *Tsuga mertensiana* | 15% | Yes | FACU |
| 2. *Picea engelmannii* | 15% | Yes | FAC |
| 3. *Abies grandis* | 15% | Yes | FACU |
| 4. | | | |
| | 45% = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: 10' r ) | | | |
| 1. *Menziesia ferruginea* | 7% | Yes | FACU |
| 2. *Abies grandis* | 5% | Yes | FACU |
| 3. *Tsuga mertensiana* | 5% | Yes | FACU |
| 4. | | | |
| 5. | | | |
| | 17% = Total Cover | | |
| Herb Stratum (Plot size: 5' r ) | | | |
| 1. *Xerophyllum tenax* | 1% | No | FACU |
| 2. *Pectiantia breweri* | 1% | No | FAC |
| 3. *Arnica latifolia* | 1% | No | FAC |
| 4. *Gymnocarpium dryopteris* | 1% | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 4% = Total Cover | | |
| Woody Vine Stratum (Plot size: 10' r ) | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 96%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 17% (A/B)

**Prevalence Index worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 18 | x 3 = | 54 |
| FACU species | 33 | x 4 = | 132 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 51 (A) | | 186 (B) |

Prevalence Index = B/A = 3.65

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes** **No X**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P8**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-20 | 10YR 3/4 | 100 | | | | | SiL | |
| 20-26 | 10YR 4/6 | 100 | | | | | Si | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes** ___ **No** X

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 20

**Wetland Hydrology Present? Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Entered by: MV QC by: ___

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/26/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P9**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 4, 48N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 20

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes **X** | No | |
| Hydric Soil Present? | Yes **X** | No | **Is the Sampled Area within a Wetland?** Yes No |
| Wetland Hydrology Present? | Yes **X** | No | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

### VEGETATION

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30' r ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | 0% = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: 10' r ) | | | |
| 1. *Alnus viridis* | 80% | Yes | FACW |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 80% = Total Cover | | |
| Herb Stratum (Plot size: 5' r ) | | | |
| 1. *Athyrium angustum* | 10% | Yes | FAC |
| 2. *Mertensia paniculata* | 10% | Yes | FAC |
| 3. *Asarum caudatum* | 10% | Yes | FACU |
| 4. *Veratrum viride* | 10% | Yes | FAC |
| 5. *Sphagnum species* | 10% | Yes | NOL |
| 6. *Impatiens species* | 5% | No | FACW |
| 7. *Claytonia sibirica* | 5% | No | FAC |
| 8. *Ranunculus uncinatus* | 5% | No | FAC |
| 9. *Maianthemum stellatum* | 5% | No | FAC |
| 10. *Viola sempervirens* | 5% | No | NOL |
| 11. *Epilobium ciliatum* | 1% | No | FACW |
| | 76% = Total Cover | | |
| Woody Vine Stratum (Plot size: 10' r ) | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 24%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | Multiply by: | |
|---|---|---|
| OBL species 0 | x 1 = | 0 |
| FACW species 86 | x 2 = | 172 |
| FAC species 45 | x 3 = | 135 |
| FACU species 10 | x 4 = | 40 |
| UPL species 15 | x 5 = | 75 |
| Column Totals: 156 (A) | | 422 (B) |

Prevalence Index = B/A = 2.71

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes **X** No

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P9**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-14 | 10YR 2/1 | 100 | | | | | SiL | mucky |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes X No ___**

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Shovel refusal at 14 inches by cobbles

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes | ___ | No | X | Depth (inches): ___ |
| Water Table Present? | Yes | X | No | ___ | Depth (inches): 13 |
| Saturation Present? (includes capillary fringe) | Yes | X | No | ___ | Depth (inches): surface |

**Wetland Hydrology Present? Yes X No ___**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Entered by: MV QC by: ___

## WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys and Coast Region

Project/Site: Lookout Pass City/County: Mineral County Sampling Date: 6/26/2015

Applicant/Owner: USDA Forest Service State: Montar Sampling Point: **P10**

Investigator(s): Matthew Vesh and Amanda Christensen Section, Township, Range: 4, 48N, 32W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 20

Subregion (LRR): E, Rocky Mountain Forests and Rangeland Lat: Long: Datum:

Soil Map Unit Name: NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

| | | | | |
|---|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No X | **Is the Sampled Area within a Wetland?** | **Yes** **No X** |
| Hydric Soil Present? | Yes | No X | | |
| Wetland Hydrology Present? | Yes | No X | | |

Precipitation prior to fieldwork: 0 inches two weeks prior, 82% precipitation accumulation of average for water year.

Remarks:

### VEGETATION

| Tree Stratum (Plot size: 30' r ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. *Abies lasiocarpa* | 30% | Yes | FACU |
| 2. *Picea engelmannii* | 30% | Yes | FAC |
| 3. *Pinus contorta* | 15% | No | FAC |
| 4. | | | |
| | 75% = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: 10' r ) | | | |
| 1. *Vaccinium membranaceum* | 25% | Yes | FACU |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | 25% = Total Cover | | |
| **Herb Stratum** (Plot size: 5' r ) | | | |
| 1. *Xerophyllum tenax* | 40% | Yes | FACU |
| 2. *Maianthemum stellatum* | 15% | No | FAC |
| 3. *Coptis occidentalis* | 5% | No | NOL |
| 4. *Veratrum viride* | 1% | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| | 61% = Total Cover | | |
| **Woody Vine Stratum** (Plot size: 10' r ) | | | |
| 1. | | | |
| 2. | | | |
| | 0% = Total Cover | | |

% Bare Ground in Herb Stratum 39%

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

**Prevalence Index worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 61 | x 3 = | 183 |
| FACU species | 65 | x 4 = | 260 |
| UPL species | 5 | x 5 = | 25 |
| Column Totals: | 131 (A) | | 468 (B) |

Prevalence Index = B/A = 3.57

**Hydrophytic Vegetation Indicators:**

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- 5 - Wetland Non-Vascular Plants[1]
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** **Yes** **No X**

Remarks: Entered by: MV QC by:

## SOIL

Sampling Point: **P10**

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

| Depth | Matrix | | Redox Features | | | | | |
|---|---|---|---|---|---|---|---|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
| 0-2 | OM | | | | | | | |
| 2-8 | 10YR 2/1 | 100 | | | | | SiL | |
| 8-17 | 10YR 2/2 | 100 | | | | | SiL | coarse gravels |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils[3]:**

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present? Yes** ___ **No** X

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Shovel refusal at 15 inches

## HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

**Field Observations:**

| | | | | | |
|---|---|---|---|---|---|
| Surface Water Present? | Yes ___ | No X | Depth (inches): ___ | | |
| Water Table Present? | Yes ___ | No X | Depth (inches): 17 | **Wetland Hydrology Present?** | |
| Saturation Present? (includes capillary fringe) | Yes ___ | No X | Depth (inches): 17 | **Yes** ___ | **No** X |

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Entered by: MV QC by: ___

## ATTACHMENT B

Photographs

**Figure B1.** Wetland A. View north.

**Figure B2.** Wetland B. View east from western boundary of wetland area.

**Figure B3.** Wetland B. View north from road at eastern boundary of project area.

**Figure B4.** Wetland C. View south.

**Figure B5.** Wetland D. View west.

**Figure B6.** Tributary SR2. View north.

**Figure B7.** Tributary CA2. View north from western channel of braided stream.

**Figure B8.** Tributary CA2 with Wetland C. View south near project area boundary.